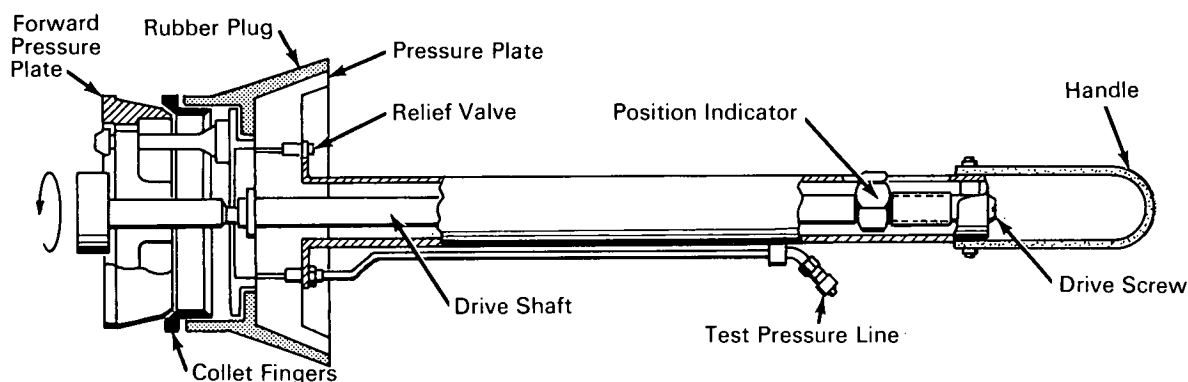


NASA TECH BRIEF



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Expandable Rubber Plug Seals Openings for Pressure Testing



The problem:

To design a single plug that can be used to seal the openings in piping systems, vessels, and chambers for low pressure leak testing. The plug must provide adequate sealing of irregular diameters without damage to mating surfaces.

The solution:

An assembly consisting of a rubber sealing plug and the mechanism for expanding it into a pressure-tight configuration.

How it's done:

The expandable plug assembly is inserted in the opening to be sealed. A convenience handle on the end of a shaft swings out of the way to expose a drive screw. Turning the drive screw clockwise operates a drive shaft to force a pressure plate in the plug head against a set of split ring metal collet fingers. The collet fingers expand against the inner surface of the rubber plug causing it to bear against the walls of the opening to be sealed. Test pressures are supplied through a line attached to the pressure plate and are kept within desired control limits by a relief valve also in the pressure plate. A threaded nut position indi-

cator on the drive shaft moves axially in a slot in the plug shaft to indicate the degree of expansion of the plug.

Notes:

1. This device has been tested and found an effective seal for helium to 50 psig.
2. The design permits operation by remote manipulators.
3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion
Office
U. S. Atomic Energy Commission
Washington, D.C., 20545
Reference: B66-10229

Patent status:

No patent action is contemplated by NASA.

Source: R. B. Brown
of Aerojet-General Corporation
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Space Nuclear Propulsion Office
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Category 05